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## CONTENTS

**Discoveries and Current Events.** — Italy: Phytopathological Observations, p. 69. – Switzerland: The Colorado Beetle in French Switzerland in 1942, p. 71.

**Legislative and Administrative Measures.** — Germany, (Government General), p. 75. –Germany (Luxemburg), p. 75. – Germany (Lower Styria). p. 75. – Denmark, p. 75. – Hungary, p. 75. – Switzertand (Vaud Canton), p, 75.

**Recent Bibliography,** p. 77.

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## ACTIVITY OF THE INTERNATIONAL INSTITUTE OF AGRICULTURE

**Publications.** — *The International Yearbook of Agricultural Legislation* 1942 is in the press and will appear, as usual, in the next month of July. This volume is the 32nd of the series, and like the others, will contain the most important agricultural laws promulgated in the different countries during the year 1942, systematically ordered. An Introduction dealing with the new tendencies of world agricultural legislation during the year precedes the volume.

Under the title *International Agricultural Problems during hostilities*, the Institute has begun to gather in separate pamphlets sold at 5 lire each, reprints of chosen articles published lately in the three monthly Bulletins (Economic, Statistical, Technical). The following numbers of this series of studies, issued in French, English and German, have already appeared: 1) *Problems of Swine Production in War-Time*; 2) *Oleaginous Crops in Europe and Attempts at their Development*; 3) *Cereals Growing in Europe*.

**The VIIth Session of the Committee of the International Forestry Center.** — The Committee of the International Forestry Center of Berlin, created within the frame of the International Institute of Agriculture of Rome, will meet at Berlin on May 11-14.

At this meeting, the Institute will present an advance edition of the part relating to Africa and Oceania of the volume "International Trade in Wood" (1925-1930). Another part, concerning Europe and the U.S.S.R., was presented at the VIth Session of the C.I.S. held at Vienna in September 1942. The parts concerning America and Asia are in the press.

A detailed report on the VIIth Session of the Committee of the International Forestry Center will be published shortly.

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INTERNATIONAL BULLETIN
OF PLANT PROTECTION

1943 No 5.

## *DISCOVERIES AND CURRENT EVENTS* *

### ITALY

### Phytopathological Observations†

Root rot of wheat. — The following Phycomycetes have been found on wheat plants : — *Pythium* spp. (at least two species, one of which is widespread and frequent), *Olpidiaster radicis* (de Wild.) Pascher, *Ligniera graminis* (Schrw.) Winge (= *Sorosphaera graminis* Schwartz), *Phytophthora* sp. Investigations are in course in order to establish the import and pathogenetic value of these species.

Geniculated wheat. — This disorder affects 60 per cent. of the plants of the ' Damiano ' variety in the Province of Cremona, and it is observed to a lesser extent in other localities of Upper Italy. It has not been found that the ethiology is connected with a want of potash fertilizer ; it appears more probably to depend on too dense sowing (at least in the case of ' Damiano ') and on the high humidity of the atmosphere at the level of the ground.

A presumed parasite of downy mildew of the vine. — A *Trichothecium* near to *T. roseum* Link. has been isolated from the conidiophores of *Plasmopara viticola*. Attempts at causing this *Trichothecium* to parasitize *Pl. viticola* on vine leaves attached to the plant in a damp room did not succeed. It is probable that the alleged parasitism of this fungus affirmed by Viala and Marsais (who identified *T. plasmoparae* in a similar case) is, on the contrary, a kind of consortium between the parasite of the higher plant and a saprophyte or hemi-saprophyte which attacks the drooping and partly decomposed organs of the vine. It is also perhaps possible that the products of metabolism of the parasite exercize some influence on the nutrition of the saprophyte ; all the more so if the frequency of certain consortiums between fungi is taken into account, *e. g.*, rusts, Meliolineae, Asterineae, *Cercospora* associated with Hyphales (Dematiaceae and Mucedinaceae).

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* Under this and the next heading the countries are arranged in French alphabetical order.

† Communication from the Royal Italian Cryptogamic Laboratory, Pavia, Italy.

Suberosis of apricots. — Not caused by *Stigmina briosiana* Farneti which was never found; on the contrary, in one case only was isolated *Clasterosporium carpophilum* (Lév.) Aderh., of which *Stigmina* probably represents (but this is only a hypothesis) a degenerated form.

This disorder of apricots should be considered as caused by physiological disturbances connected with meteorological conditions, especially with atmospheric humidity.

Pear and apple fruit rot. In the course of numerous investigations, cases of rotting pears and apples on the tree (not at the fruiterer were found due to the following causes:

(*a*) rotting due to *Monilia*, infection dating from the flower;

(*b*) rotting due to *Alternaria*, *Botrytis* and other fungi of a semi-parasitic or saprophytic character, infection being produced constantly through solutions of continuity of the epidermis of the fruit, during ripening;

(*c*) rotting due to the above-mentioned fungi, but in consequence of deep lesions brought about by codling moth attack (*Laspeyresia* [*Cydia*] *pomonella*).

Fruit shedding of the persimmon. — Abundant shedding was observed due, not to parasitic agents (*Botrytis diospyri* Brizi), but to physiological disturbances connected probably with the vegetative development.

'Khamedj' of the date palm. — Material from Libya was found to be attacked by *Mauginiella scaettae* Cav. The genus *Mauginiella* should not be included into *Geotrichum*, as affirmed by Maire, owing to the difference in the disarticulation of the arthrospores which is not typical; it is produced in two periods: first there are the very long cells, from 2 to 40 elements and subsequently there is the fragmentation of all the isolated elements. The genus *Mauginiella* should be considered in itself, also because of the different parasitic biological aptitude, which is not that of *Geotrichum*.

Smut of dates. — Material from Libya was found to be attacked by *Aspergillus phoenicis* (Corda) Wehmer (= *Ustilago phoenicis* Corda). This species differentiates from *A. niger* by the yellow pigmentation of the mycelium and its semi-parasitic aptitude.

Rust of the Austrian pine. — Severe attacks of *Cronartium asclepiadeum* (Willd.) Fr. were observed in the region of Massa, Tuscany. Control of the disease by means of felling and destroying the infested plants, and coating of trees, where infection is in the early stages, with tar, have not, sufficed to check the epidemic.

## The Colorado Beetle in French Switzerland in 1942*

The year 1942 was characterized by long periods of dry and sunny weather, interspersed with short periods of rain. It would have been thought that this weather, mainly fine and warm, would have favoured the development and propagation of the Colorado beetle (*Leptinotarsa decemlineata*) and that there should have been an exceptionally strong invasion. Such was not the case. Already during the summer, reports showed that, in general, attack was of little importance, except in a few distinct regions, and that, compared with last year, it appeared in regression. This impression is confirmed by the following table which indicates the number of communes invaded and the foci reported from 1939 to 1942.

In French Switzerland :

| Cantons | Communes attacked | | | | Number of foci | | | |
|---|---|---|---|---|---|---|---|---|
| | 1939 | 1940 | 1941 | 1942 | 1939 | 1940 | 1941 | 1942 |
| Genève | 42 | 41 | 45 | 45 | 3500 | widespread | widespread | widespread |
| Vaud | 376 | 280 | 370 | 327 | 20200 | » | » | » |
| Neuchâtel | 61 | 48 | 62 | 62 | 2800 | 1205 | » | » |
| Fribourg | 203 | 76 | 214 | 179 | 1528 | 563 | » | 5013 |
| Valais | 20 | 10 | 19 | 28 | 45 | 63 | 179 | 210 |
| Bernese Jura | 143 | 131 | 146 | 146 | 5000 | widespread | widespread | widespread |
| TOTAL | 845 | 586 | 856 | 787 | 33073 | » | » | » |

In German Switzerland :

| Cantons | Communes attacked | | | | Number of foci | | | |
|---|---|---|---|---|---|---|---|---|
| | 1939 | 1940 | 1941 | 1942 | 1939 | 1940 | 1941 | 1942 |
| Bern | 261 | 158 | 323 | 261 | 1770 | 1210 | 8535 | 6179 |
| Solothurn | 105 | 82 | 124 | 111 | 1022 | 889 | 2809 | 3472 |
| Basel | 60 | 71 | 76 | 68 | 353 | 1410 | 2808 | 2172 |
| Aargau | 120 | 205 | 224 | 176 | 581 | 3094 | 5544 | 3609 |
| Luzern | 71 | 53 | 105 | 86 | 528 | 152 | 1866 | 507 |
| Zürich | 36 | 110 | 150 | 105 | 52 | 598 | 1317 | 829 |
| Schaffhaussen | 5 | 20 | 30 | 125 | 7 | 800 | 491 | 219 |
| Thurgau | 4 | 9 | 57 | 36 | 6 | | 89 | 59 |
| Zug | 5 | 4 | 10 | 10 | 9 | 6 | 107 | 65 |
| Schwyz | 1 | 2 | 14 | 20 | 1 | 2 | 40 | 302 |
| Unterwald | 1 | — | 10 | 13 | 1 | — | 73 | 78 |
| Uri | — | — | 1 | — | — | — | 2 | — |
| Glarus | — | 3 | 5 | 9 | — | 3 | 7 | 15 |
| Appenzell | — | — | 6 | — | — | — | 11 | — |
| St. Gallen | 17 | 14 | 46 | 38 | 25 | 31 | 270 | 261 |
| TOTAL | 686 | 731 | 1181 | 958 | 4355 | 8204 | 23969 | 17767 |
| TOTAL FOR SWITZERLAND | 1531 | 1317 | 2037 | 1745 | 37428 | — | — | — |

* Communication from the Federal Experiment and Seed Control Station, Lausanne (Mont Calme), Switzerland.

It is seen that in the majority of cantons there is a diminution both in the number of communes attacked and in the number of foci. The four cantons situated near the Jura have more and more ' widespread ' foci, namely that it is impossible to estimate the number of foci, but there also the invasion was not so considerable as in the previous year, except in the canton of Genève where invasion was reported as being much more intense. In the two cantons of Fribourg and Solothurn, the number of foci increased, despite the small number of communes invaded ; these also are on the point of becoming widespread. Progression has only continued in four cantons : Valais and three small cantons of central Switzerland, Schwyz, Unterwald and Glarus. The foci which appeared in 1941 at Uri and Appenzell have been destroyed ; in 1942, therefore, 4 cantons were entirely free from attack, Graubünden and Ticino not having yet been invaded.

Biology. — The first adult insects seen were brought to light on April 21 by deep ploughing at Cressier near Neuchâtel and on April 22 at Aire near Genève. Some isolated emergences took place at the beginning of May, but, on general, it was only after the heavy rains, which occurred between the 11th and 14th of this month, that emergences became more and more numerous. The potatoes, in most cases, having been planted late, at first the insects found little food, were noticed little and dispersed fairly rapidly. It was only at the end of May that invasion of the fields was more general. At that time, however, there were still adult insects in the ground ; it is probable that the dryness and hardness of certain soils retarded and in some parts even prevented the emergence of the Colorado beetles. Be that as it may, in many regions of the Swiss Plateau, invasion from the beginning was very general, but not very dense and less severe than was expected. This was not the case, however, everywhere and many fields were heavily attacked, especially during June, in several communes situated at the Pied and in the low-lying valleys of the Jura, from Genève to Basel, as well as in the Fribourg region of the Lake of Neuchâtel, in the Vaudois and Fribourg Broye, and in the lower Plain of the Rhone.

During the first fortnight of July, adults and larvae of all sizes were found together ; but in many districts the large larvae ended by predominating in number and the adult insects and young larvae disappeared to an ever increasing extent. After the middle of July, a heavy invasion of summer adult insects again occurred in the fields and spread in veritable swarms in some parts. Despite the abundance of this summer generation, relatively little oviposition took place. It seems that the persistant drought at the end of July and during August, but slightly interrupted by infrequent and brief rains, had, in many cases, its effect on the adult insects by opposing egg-laying and impelling them to bury themselves in the ground. Drought often produces an effect on the adults similar to that of cold, which leads them to lie dormant in the ground ; this diapause is interrupted by rain or may be prolonged until the following spring.

The second generation was very weak practically everywhere. Thanks to the fine weather during September, it was able to terminate its evolution and give

rise to a third emergence of adults which, in different parts, attacked in large numbers the still green hulms, until the plants were dug up at the beginning of October ; adult insects and larvae were still found by October 15 near Mervelier (Bernese Jura).

In the mountainous regions, in the Jura, invasion throughout the year was weak, although towards the end of June, strong storm winds brought swarms of Colorado beetles from France. The potato plants had not yet come up or hardly so at this moment, and few insects seemed to have been able to breed as usual. The foci remained few in number and very scattered, and no trace of a second generation was found. In the Fribourg fore-Alps, the insects made their appearance late, in June, and the foci were also weak and few in number ; here, as yet, there are only transitory appearances, and it seems that the nature of the soil does not lend itself to hibernation of the adult insects. At Valais, above St. Maurice, the foci were small, isolated and without correlation with the development of the parasite in the Lower Valais ; after the middle of June, for the first time, a Colorado beetle was reported in a lateral valley of Valais, at Bovernier on Martigny ; other small foci were discovered in July near Chambéry, the insects having been brought, it is thought, from Savoy, over the passes by storm winds. All these mountain foci were rapidly destroyed.

Treatments. — The general regression of the invasion in 1942 is partly due to natural causes : heavy soils remaining dry thus delaying or preventing emergence, late mountain frosts, heavy showers at the end of May and June, destroying numerous young larvae, summer drought checking oviposition, etc. ; the reason, however, is to be looked for chiefly in the control organized by the cantonal services and generally carried out conscientiously and under favourable conditions. In the majority of districts, inspection of the fields, often with the aid of school-children, preceded the treatments properly so called. It is generally agreed that these inspections have always been very useful and should be continued each year. By this means the number of insects can be reduced by collecting and even small foci exterminated; in some communes of the Bernese Jura and Neuchâtel, well organized collecting made it possible to destroy several tens of thousands of perfect insects. On the other hand, inspections helped in preparing treatments, by establishing the number and boundaries of the fields to be sprayed. School-scoutings were made during the second fortnight of June and, in the mountainous regions, at the beginning of July ; a second series of compulsory inspections was decreed in certain localities in August and September, as well as in the canton of Vaud from August 17 to 20, in some parts up to September 10, and in the canton of Genève from September 4.

The first obligatory treatments took place from the middle of June to the beginning of July. According to locality and circumstances, they were repeated a second and even a third time between the middle of July and the end of August, but frequently these supplementary treatments were not necessary. Thanks to the fine weather, spraying had a prolonged and very efficacious action. The use of animal-drawn sprayers with motopumps is becoming general in several regions in an encour-

aging manner ; only this type, in extensive farming, can give really effectual results, at the same time economizing material.

The stocks of diplumbic arsenic being partly exhausted, were substituted in some districts by calcium arsenates, which also proved efficacious. For truck crops and garden fields, the use of rotenone dusts was continued. Several experiments were made with ' Gésarol ', in sprays and dusts ; very good results weré obtained everywhere. Not being poisonous, this product may be employed both in gardens and in fields. Arsenates and derris powders were again supplied at reduced price to the farmers through the intermediary of the cantonal services. Thus for example, the following were supplied :

in the canton of Vaud, 13200 boxes of arsenates and 540 kg. of powder,
in the canton of Genève, 7354 doses of arsenates and 353 kg. of powder,
in the canton of Fribourg, 3983 doses of products.

It is anticipated that control measures will be carried out in 1943 on the same general lines as in 1942. There are still stores of diplumbic arsenic and derris powders ; these products, however, are becoming scarcer and chiefly calcium arsenates or ' Gésarol ' will be employed. In view of the present necessity of economizing as much as possible products containing copper, preparations with Bordeaux mixture, alone or together with lime sulphur mixture, will only be used in cases when there is an actual advantage in treating the fields for the Colorado beetle and potato blight (*Phytophthora infestans*) at the same time.

If the Colorado beetles were less numerous in 1942, this does not necessarily mean that this will be the case in 1943 ; at any event, mass emergence in spring may be expected. The great extension in potato crops and the ever increasing importance of this food product in the economy of the country makes it a duty to prepare in time the next campaign and to continue to carry on control with the same energy as before.

## *LEGISLATIVE AND ADMINISTRATIVE MEASURES*

**Germany (Government General).** — By Ordinance of December 9, 1942 regarding criminal law in agriculture, Article 3 of the Ordinance dated June 28, 1941 relative to the control of the diseases and pests of fruit crops [see this *Bulletin* 1941, No. 11, p. 205] is rendered ineffectual. (*Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin, Anfang März 1943, 23. Jahrg., Nr. 3, S. 18).

**Germany (Luxemburg).** — According to press information dated January 12, 1943, extensive action is being taken with a view to intensifying the campaign against the enemies of fruit crops. Severe control is being exercized in order to ensure that insecticidal treatments are carried out with the necessary care. (*Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin, Anfang März 1943, 23. Jahrg., Nr. 3, S. 18).

**Germany (Lower Styria).** — An Ordinance dated January 10, 1943 introduces provisions relative to the control of the diseases and pests of fruit crops similar to those laid down by the Decree of October 29, 1937 [see this *Bulletin* 1938, No. 5, pp. 100-101]. (*Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin, Anfang März, 1943, 23. Jahrg., Nr. 3, S. 18).

**Denmark.** — Regulation No. 247 of June 13, 1942 indicates the measures for the sanitary inspection of potatoes intended for export. (*Lovtidenden A.*, Kobenhavn, 19. June 1942, Nr. 37, sid. 801-802).

*** Law No. 290 dated July 4, 1942 regards the control of rooks and crows. (*Ibid.*, 4. Juli 1942, Nr. 45, sid. 884).

**Hungary.** — Ministerial Ordinance No. 185. 300/1941. F. M. of May 24, 1941 prohibits the spraying and dusting of fruit trees and shrubs with arsenical preparations during the flowering period. (*Budapesti Közlöny*, Budapest, 1941 május 31., 123. szám., 3.o.).

**Switzerland (Vaud Canton).** — By Decree of May 26, 1942 the destruction of thistles [*Cnicus*] in fields of cereals and other crops, including vines and fields of American vine wood, is made compulsory. These weeds should be destroyed before seed formation.

The destruction of thistles on waste land may also be required if nearby crops are menaced by contamination.

The municipalities and communal bureaux for the cultivation of fields are commissioned with seeing to the destruction of thistles in the territory of the commune. They may, but with the authorization of the cantonal Station for field cultivation, order the removal of the weeds in question at the expense of the farmer if this latter does not carry out the operation himself within the prescribed period.

The cantonal Station for field cultivation may, at the request of the communal authorities or the communal bureau, order the destruction of other weeds damaging crop yields or threatening to infect nearly crops. (*Recueil des lois, décrets, arrêtés et autres actes du Gouvernement du Canton de Vaud*, Lausanne, 1943, tome CXXXIX-1942, p. 114-115).

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This first volume of the treatise which the Director of the Institute of Plant Pathology of the University of Perugia decided to write comprises three long chapters which treat respectively on the general aspects of the subject, virus diseases and bacterial diseases.

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PROF. UGO PAPI, *Segretario generale dell'Istituto, Direttore responsabile.*

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